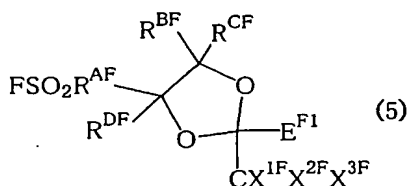
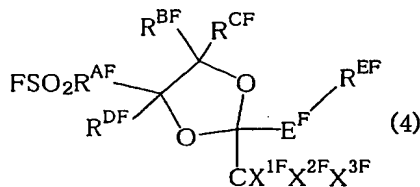
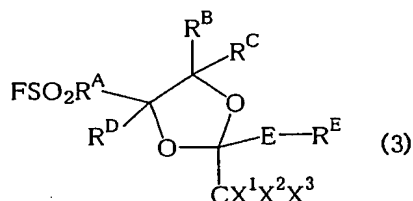


WHAT IS CLAIMED IS:

1. A process for producing the following fluorosulfonyl group-containing compound (5), characterized in that the following compound (3) is fluorinated to form the  
 5 following compound (4), and then, the compound (4) is subjected to a decomposition reaction:



provided that the symbols in the formulae have the following meanings:

- 10 At least one selected from  $R^A$  to  $R^E$ ,  $X^1$  to  $X^3$  and  $E$  is a hydrogen atom or a group having hydrogen atom(s), and at least one selected from  $R^{AF}$  to  $R^{EF}$ ,  $X^{1F}$  to  $X^{3F}$  and  $E^F$  is a fluorinated group or a fluorine atom;

$R^A$ : a bivalent organic group;

- 15  $R^{AF}$ : a group corresponding to  $R^A$ , i.e. a bivalent organic group having  $R^A$  fluorinated, or the same bivalent organic group as  $R^A$ ;

$R^B$ ,  $R^C$ ,  $R^D$ : each independently being a hydrogen atom, a halogen atom or a monovalent organic group;

- 20  $R^{BF}$ ,  $R^{CF}$ ,  $R^{DF}$ :  $R^{BF}$ ,  $R^{CF}$  and  $R^{DF}$  are groups which

correspond to  $R^B$ ,  $R^C$  and  $R^D$ , respectively; when any one of  $R^B$  to  $R^D$  is a hydrogen atom, the one of  $R^{BF}$  to  $R^{DF}$  corresponding to the hydrogen atom is a hydrogen atom or a fluorine atom; when any one of  $R^B$  to  $R^D$  is a halogen atom, the one of  $R^{BF}$  to  $R^{DF}$  corresponding to the halogen atom is a halogen atom; when any one of  $R^B$  to  $R^D$  is a monovalent organic group, the one of  $R^{BF}$  to  $R^{DF}$  corresponding to the monovalent organic group is a monovalent organic group having the corresponding one of  $R^B$  to  $R^D$  fluorinated, or the same group as the corresponding one of  $R^B$  to  $R^D$ ;

$R^E$ : a monovalent organic group;

$R^{EF}$ : a group corresponding to  $R^E$ , i.e. a monovalent organic group having  $R^E$  fluorinated, or the same monovalent organic group as  $R^E$ ;

$E$ : a bivalent connecting group;

$E^F$ : a group corresponding to  $E$ , i.e. the same bivalent connecting group as  $E$ , or a bivalent connecting group having  $E$  fluorinated;

$E^{F1}$ : a group formed by scission of  $E^F$ ;

$X^1$ ,  $X^2$ ,  $X^3$ : each independently being a hydrogen atom, a chlorine atom, or a fluorine atom;

$X^{1F}$ ,  $X^{2F}$ ,  $X^{3F}$ :  $X^{1F}$ ,  $X^{2F}$  and  $X^{3F}$  correspond to  $X^1$ ,  $X^2$ ,  $X^3$ , respectively; when any one of  $X^1$  to  $X^3$  is a hydrogen atom, the one of  $X^{1F}$  to  $X^{3F}$  corresponding to the hydrogen atom, is a hydrogen atom or a fluorine atom; when any one of  $X^1$  to  $X^3$  is a fluorine atom, the one of  $X^{1F}$  to  $X^{3F}$

corresponding to the fluorine atom, is a fluorine atom;  
and when any one of  $X^1$  to  $X^3$  is a chlorine atom, the one  
of  $X^{1F}$  to  $X^{3F}$  corresponding to the chlorine atom, is a  
chlorine atom.

5 2. The process according to Claim 1, wherein the  
fluorination reaction is carried out by the reaction with  
fluorine in a liquid phase.

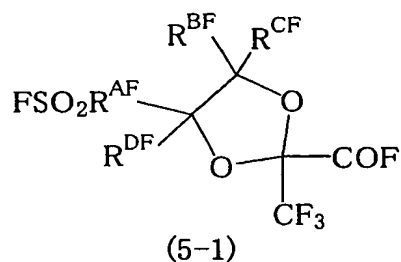
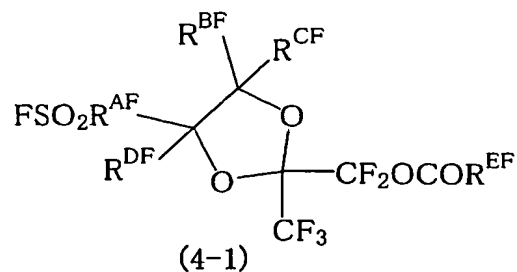
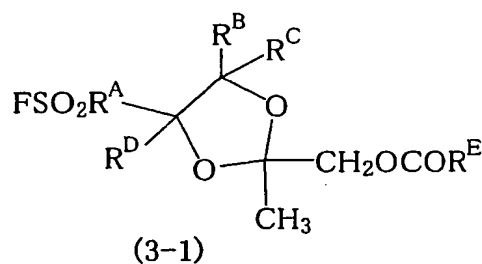
3. The process according to Claim 2, wherein the  
fluorine content of the compound (3) is from 20 to 86  
10 mass%.

4. The process according to Claim 2, wherein the  
molecular weight of the compound (3) is from 200 to 1,000.

5. The process according to Claim 1, wherein  $R^E$  is a  
perfluorinated monovalent organic group, and  $R^{EF}$  is the  
15 same group as  $R^E$ .

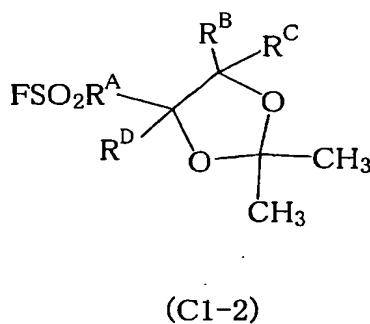
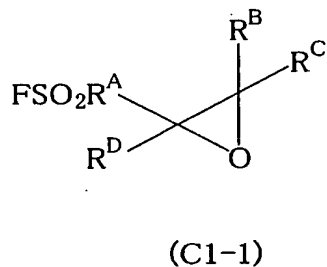
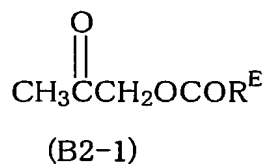
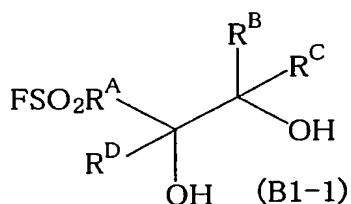
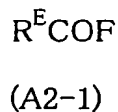
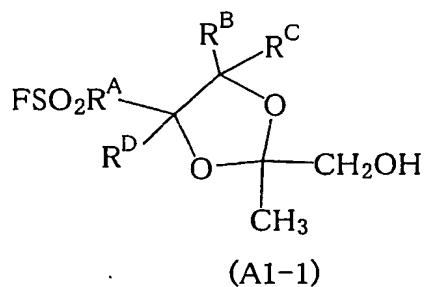
6. The process according to Claim 1, wherein the  
fluorination is a reaction whereby the compound (3) is  
substantially perfluorinated.

7. The process according to Claim 1, wherein the  
20 compound (3) is the following compound (3-1), the  
compound (4) is the following compound (4-1), and the  
compound (5) is the following compound (5-1):



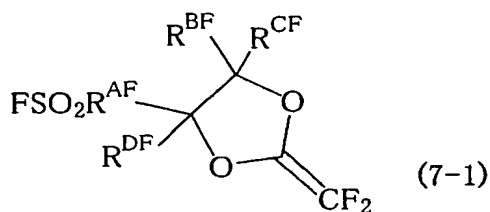
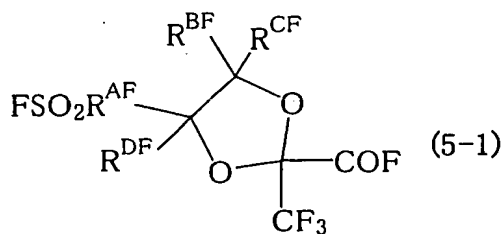
provided that the symbols in the formulae have the same meanings as defined above.

8. The process according to Claim 7, wherein the  
 5 compound (3-1) is a reaction product of the following  
 compound (A1-1) and the following compound (A2-1), a  
 reaction product of the following compound (B1-1) and  
 the following compound (B2-1), or a reaction product  
 obtained by reacting the following compound (C1-1) with  
 10 acetone to form the following compound (C1-2) and  
 reacting the compound (C1-2) and the following compound  
 (B2-1):



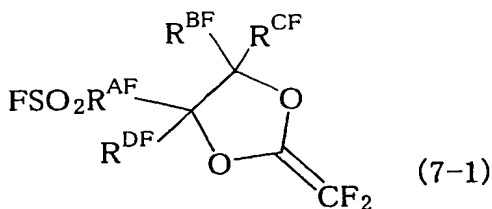
provided that the symbols in the formulae have the same meanings as defined above.

9. The process according to Claim 8, wherein the  
 5 compound (3-1) is a compound obtained by reacting the  
 compound (C1-1) with acetone to obtain a reaction product  
 containing the compound (C1-2) and acetone, and using the  
 reaction product as it contains the acetone, for the  
 reaction with the compound (B2-1).
- 10 10. A process for producing the following compound (7-1),  
 characterized in that the following compound (5-1) is  
 thermally decomposed:



provided that the symbols in the formulae have the same meanings as defined above.

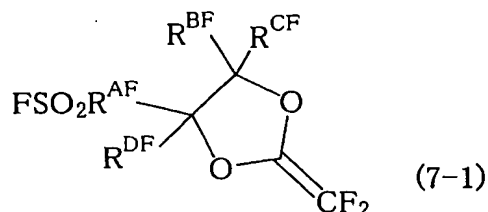
11. A process for producing a fluorosulfonyl group-  
 5 containing polymer, characterized by polymerizing at  
 least one member of the following compound (7-1), or at  
 least one member of the following compound (7-1) and at  
 least one member of a polymerizable monomer which is  
 copolymerizable with the compound (7-1):



10

12. A fluorosulfonyl group-containing polymer, comprising  
 monomer units having polymerized at least one member of  
 the following compound (7-1), or monomer units having  
 polymerized at least one member of the following compound

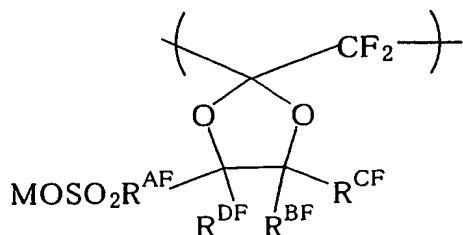
(7-1) and monomer units having polymerized at least one member of a polymerizable monomer which is copolymerizable with the compound (7-1):



13. The fluorosulfonyl group-containing polymer according to Claim 12, which has a molecular weight of from  $5 \times 10^3$  to  $5 \times 10^6$  and contains from 0.1 to 99.9 mol% of the monomer units having polymerized at least one member of a polymerizable monomer which is copolymerizable with the compound (7-1).

14. A process for producing a sulfonate or sulfonic group-containing polymer, characterized in that fluorosulfonyl groups of the fluorosulfonyl group-containing polymer produced by the process of Claim 11, are subjected to alkali hydrolysis, or to such alkali hydrolysis, followed by acid treatment.

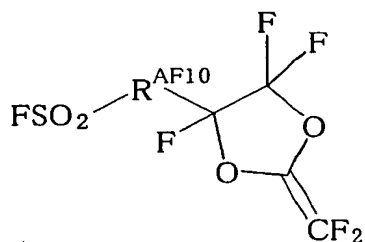
15. A fluorosulfonic group-containing polymer comprising monomer units represented by the following formula, or such monomer units and monomer units of another monomer which is copolymerizable with such monomer units:



wherein M is a hydrogen atom or a counter ion.

16. The fluorosulfonic group-containing polymer according to Claim 15, which has a molecular weight of from  $5 \times 10^3$  to  $5 \times 10^6$  and contains from 0.1 to 99.9 mol% of the monomer units of another copolymerizable monomer.

17. A compound represented by the following formula (7-1A):



(7-1A)

10 wherein  $R^{AF10}$  is a  $C_{1-20}$  perfluoroalkylene group or a  $C_{1-20}$  perfluoro(etheric oxygen atom-containing alkylene) group.

18. Any one of the compounds represented by the following formulae, wherein  $M^2$  is an alkali metal ion:



